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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/681,584	10/08/2003	Marcos Kamezos	CPAC 1029-7	6868

22470 7590 10/26/2004

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EXAMINER

CHAMBLISS, ALONZO

ART UNIT PAPER NUMBER

2814

DATE MAILED: 10/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/681,584

Applicant(s)

KARNEZOS, MARCOS

Examiner

Alonzo Chambliss

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 September 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) 12-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>2-4</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election of claims 1-11, 21, and 22 in the reply filed on 9/9/04 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).
2. Claims 12-20 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected claims, there being no allowable generic or linking claim.

Information Disclosure Statement

3. The information disclosure statement (IDS) submitted on 4/8/04, 7/12/04, and 8/5/04 was filed before the mailing date of the non-final rejection on 10/21/04. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Drawings

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: 11, 43, 47, 50, 52, 86, 90, 92, 142, 305, 306, 313, 818. Also, Fig. 6B has two lines that are not represented by references numerals. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the

reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1-5, 8, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akram et al. (U.S. 5,994,166) in view of Wu et al (U.S. 6,590,281) and Belopolsky (U.S. 6,791,845).

With respect to Claims 1, 21, and 22, Akram teaches a multi-package module 100 comprising stacked lower 116, 128 and upper packages 140,162, each said package including a die 128, 162 attached to a substrate 116, 140, wherein the upper package 140, 162 is inverted and wherein the upper and lower substrates 116, 140 are connected by wire bonding 148 (see col. 3 lines 43-60, col. 5 lines 55-67, and col. 6 lines 1-54; Fig. 1). Akram fails to disclose a package with a stacked die package. However, Wu discloses a package 2 with a stacked die package 20, 24, 25. Thus, Akram and Wu have substantially the same environment of a chip mounted on a substrate by solder bumps, wherein the chip is encapsulated. Therefore, it would have been obvious to one skilled in the art at the time of the invention to substitute a stacked die package for the upper package of Akram, since the stacked die package would increase the chip capacity of the semiconductor package without altering the package profile as taught by Wu.

With respect to Claims 2-4, Akram teaches a lower package and upper package (see Fig. 1). Akram fails to disclose each lower and upper packages comprising a stacked die package. However, Wu discloses a package 2 with a stacked die package 20, 24, 25. Akram-Wu discloses the claimed invention except for each lower and upper

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packages comprising a stacked die package. It would have been obvious to one having ordinary skill in the art at the time the invention was made to each lower and upper packages comprising a stacked die package, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8. Thus, Akram and Wu have substantially the same environment of a chip mounted on a substrate by solder bumps, wherein the chip is encapsulated. Therefore, it would have been obvious to one skilled in the art at the time of the invention to substitute a stacked die package for the upper package of Akram, since the stacked die package would increase the chip capacity of the semiconductor package without altering the package profile as taught by Wu.

With respect to Claim 5, Wu discloses wherein adjacent stacked die in the stacked die package are separated by a spacer (i.e. adhesive layer) (see col. 4 lines 20-24; Figs. 4, 6, and 7).

With respect to Claim 6, Akram fails to disclose a heat spreader (i.e. electromagnetic shield) for one of the packages. However, Wu discloses disclose a heat spreader 37 for one of the package 3 (see col. 5 lines 1-6; Fig. 7). Thus, Akram and Wu have substantially the same environment of chip mounted on a substrate, wherein the chip is encapsulated. Therefore, it would have been obvious to incorporate a heat spreader with the product of Akram, since the heat spreader would dissipate heat away from the semiconductor package as taught by Wu.

With respect to Claim 7, Akram teaches an additional inverted package stacked over the second package (see Fig. 4).

With respect to Claims 8-11, Akram teaches a package with a ball or column grid array package (see col. 3 lines 45-60) an additional inverted package stacked over the second package (see Fig. 4). The additional package is a flip chip package (see col. 1 lines 14-35). It is well known in the semiconductor industry to substitute a land grid array for a ball grid or column grid array as evident by Belopolsky (see col. 1 lines 15-18).

Double Patenting

7. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

8. Claims 1-11, 21, and 22 provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of copending Application No. 10/681,572. Although the conflicting claims are not identical, they are

not patentably distinct from each other because copending application recites an upper package that is inverted and stacked on a lower package.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

9. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

10. Claims 1-11,21, and 22 provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of copending Application No. 10/681,734. Although the conflicting claims are not identical, they are not patentably distinct from each other because copending application recites an upper package that is inverted and stacked on a lower package.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

11. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA

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1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

12. Claims 1-11,21, and 22 provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of copending Application No. 10/681,584. Although the conflicting claims are not identical, they are not patentably distinct from each other because copending application recites an upper package that is inverted and stacked on a lower package.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

The prior art made of record and not relied upon is cited primarily to show the product of the instant invention.

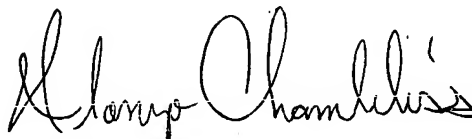
Conclusion

13. Any inquiry concerning the communication or earlier communications from the examiner should be directed to Alonzo Chambliss whose telephone number is (571) 272-1927.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-7956

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system Status information for published applications may be obtained from either Private PMR or Public PMR. Status information for unpublished applications is available through Private PMR only. For more information about the PMR system see <http://pair-dkect.uspto.gov>. Should you have questions on access to the Private PMR system contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free) or EBC_Support@uspto.gov.

AC/October 21, 2004

A handwritten signature in black ink, appearing to read "Alonzo Chambliss". The signature is fluid and cursive, with the first name "Alonzo" and last name "Chambliss" clearly distinguishable.

Alonzo Chambliss
Primary Patent Examiner
Art Unit 2814